

IN THE CLAIMS

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11. (Twice Amended) A control system for controlling a hard disk drive having a rotatably supported disk, a read/write head which is movable relative to the disk and which outputs an analog servo wedge signal read from the disk, and an actuator operable to urge movement of the read/write head relative to the disk in response to an analog positioning signal, said control system comprising:

a position-error-signal channel operable to generate an analog position error signal in response to the analog servo wedge signal;

an analog-to-digital converter circuit operable to convert the analog position error signal to a digital position error signal;

a digital signal processor operable to generate digital positioning information as a function of the digital position error signal, said digital signal processor utilizing a model reference control technique based on [control characteristics] an expected response of the actuator to a feed forward control signal of said hard disk drive in generating the digital positioning information; and

digital-to-analog converter operable to convert the digital signal positioning information into the analog positioning signal.